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TREATMENT OF WATER TO PREVENT THE GROWTH OF CRENOTHRIX[1]

By F. C. Amsbary

The Champaign-Urbana Water Company takes its supply from tube wells 160 feet deep. The water in its raw state has an iron content of 2 parts per million. Six years ago the company installed an iron removal plant of 2,000,000 gallons daily capacity. The filter plant consists of four units. The construction is of reinforced concrete.

The company has been bothered with crenothrix and has used mechanical and chemical means of prevention with but little success. Last summer, at the suggestion of W. F. Monfort, liquid chlorine was tried with great success. The crenothrix growth had possession of the filter beds, rendering them inefficient; the reservoirs were foul with it, requiring frequent cleaning. The distribution system was supporting its proportion. Since pipes were stopping up all around the city, the situation was serious indeed.

The introduction of chlorine into the raw water as it enters the filters had an immediate effect on the crenothrix, causing it to disappear, and since the use of chlorine began the water has been free from the pest. The filter beds are easily kept sweet and clean, the efficiency is 95 per cent, and no growth can be detected in the basins or distribution system. It has been a great relief, for complaints which were numerous before its use have ceased entirely since chlorine has been employed. About 4½ pounds per million gallons are used. The chlorine is introduced into the water by means of a Wallace and Tiernan manual-feed apparatus.

DISCUSSION

F. C. Amsbary: The company was bothered with crenothrix before the filter plant was installed. For a time after the filters were put in operation it almost entirely disappeared. The presence of iron in water is very favorable to the growth of crenothrix, therefore when the iron was removed it died and very little, if any, was observed. The crenothrix, however, did continue to thrive in the raw water and gradually got a footing in the sand beds of the filters, rendering them less efficient in the removal of iron. This is possibly the reason for the growth getting a start in the distribution system.

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[1] Read before the Illinois Section, March 25, 1919.

C. B. **Burdick**: In Winona, Minn., they had a great deal of trouble from iron and crenothrix. They recently turned water from new artesian wells into the supply from shallow wells formerly used and mixed it half and half. They have now been operating about three years and the trouble seems to be almost entirely eliminated, although the artesian water contains the same amount of iron as that from the shallow wells.

A. N. **Talbot**: The author's fear that this cure may not be permanent indicates that he may have been looking into the history of the water supply. When the plant was built a good many years ago, the water was pumped from the wells into a basin which was covered with a roof, and after a time considerable trouble developed. Professor Forbes thought it was worth while to remove the roof of the reservoir, since the crenothrix thrives in the dark. The roof was taken off and it was reported that there was considerable improvement thereafter. Later the trouble began to reach other parts of the system and the growth in the mains became troublesome. Then the author took up the matter of an iron removal plant. That worked well for a time, until here again the crenothrix changed its habits and began to grow down in the sand of the filter and there was a recurrence of the trouble. Still later a roof was put on the clear-water basin to overcome trouble with worms. Mr. Monfort may think that after a while the crenothrix will get accustomed to the presence of chlorine and will thrive on it, and the author will have his old trouble again.